

Approved by the decision
of the Supreme Board of Trustees
from April 18, 2013

NAZARBAYEV UNIVERSITY

STRATEGY
2013-2020

Nazarbayev University: Fulfilling a National Dream

During his 2006 annual address to the people of Kazakhstan President Nazarbayev declared that Kazakhstan was at the threshold of a new phase of accelerated development. The effectiveness of education and science system would largely determine whether Kazakhstan could successfully compete internationally. Thus he assessed that “in order to create a unique academic environment a prestigious international university must be established in our capital”. This university would give Kazakhstan the engineering and scientific personnel and future leaders needed to take on Kazakhstan’s industrial and innovative challenges.

Creating a world-class university in Astana was the logical next step in developing Kazakhstan’s human resource potential, following the establishment of the President’s “Bolashak” international scholarship program. Since 1993 the Bolashak program has given more than 9,000 of Kazakhstan’s best and brightest students the opportunity to study at world’s leading educational institutions. It was now time, however, to create an institution of higher learning in Kazakhstan that can compete alongside the world’s leading universities.

In announcing the launch of the program to establish Nazarbayev University in September, 2009, the President emphasized his personal commitment to the project: "Creation of the new university is the most important national project...[It] will have a significant impact on many Kazakhstanis and on the development of a backbone for our state. I believe that the new university... should be created as a national brand, harmoniously combining Kazakhstani identity with the best international educational and scientific practice."

President Nazarbayev tasked NU with setting “a national standard of higher education for the rest of the country” and by doing so to lead the process of reforming and modernizing Kazakhstan’s higher education system.

In less than three years Nazarbayev Universtiy has made significant strides as will be illustrated in this present strategy. It will further outline how NU will go about achieving its mission over the next decade.

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Foreword

In his *Strategy 2030* address on 10 October, 1997, President Nazarbayev described Kazakhstan of 2030 as a country with the competitive, economically diversified upper income economy that is a full and active member of the global community. To achieve this vision, Kazakhstan will have to turn to its greatest asset: its people. It will be Kazakhstani scientists, educators, investors, entrepreneurs and workers who create the knowledge, finance and develop the businesses, and provide the labor force that will diversify the country's economy and put it on a globally competitive footing.

President Nazarbayev is committed to ensuring that Kazakhstan's citizens have world-class skills, training, imagination and the capacity for critical thinking needed to deliver on his vision for the country. In the decade and a half since he set out *Strategy 2030* Kazakhstan's President has initiated a package of far-reaching and fundamental reforms designed to deliver on this commitment. These reforms are nothing less than a comprehensive top-to-bottom restructuring and modernizing of every aspect of Kazakhstan's education, training and research systems. The President has instructed the Government of Kazakhstan at all levels to develop:

- A primary and secondary school system that prepares Kazakhstan's youth for entry into the world's best universities so that they can acquire the technical skills needed to fuel Kazakhstan's economy;
- A national research and development program that puts Kazakhstan researchers at the forefront of efforts to solve the country's and the world's most critical problems;
- A vocational education system that gives Kazakhstan a labor force with the technical skills the economy needs to compete and succeed;
- A university system that produces the leadership and expertise needed to drive Kazakhstan's social and economic development.

This is a daunting agenda and the President has wisely approached it through what might be called "reform by example." For primary and secondary school reform he has established the Nazarbayev Intellectual Schools program that is developing trilingual "centers of excellence" that will attract Kazakhstan's best and brightest students from all parts of the country and all ethnic groups.

To produce the knowledge needed to drive Kazakhstan's growth and diversification, Kazakhstan is substantially increasing its research and development expenditures and reforming its research funding mechanisms. These changes will give Kazakhstani researchers the support and systems needed to tackle the most pressing scientific, engineering, economic and social challenges the country faces, and to collaborate with the world's best researchers and research institutes.

Becoming a generator of knowledge is essential to Kazakhstan's future, but knowledge alone is not enough. Entrepreneurs, business leaders, financiers, and Kazakhstan's workers must take this knowledge and transform it into economic growth and prosperity for all. To ensure that Kazakhstan's workers have the skills employers need, the Government has launched the Kasipkor program to redesign Kazakhstan's vocational education delivery system.

At the center of these reform efforts are Kazakhstan's universities. If Kazakhstan is to see first *Strategy 2030* and then *Strategy 2050* become a reality, its universities must produce graduates capable of creating that future. Kazakhstan's university graduates must have the best technical skills and a capacity to use those skills creatively in ever changing economic times. Nazarbayev University is at the vanguard of the country's effort to put its university system on a global footing in terms of quality and delivery. Nazarbayev University, with its academic freedom and autonomy protected by a special law, and its integrated teaching, research and R&D activities, is becoming a model for other Kazakhstani universities.

The law establishing Nazarbayev University protects it from external interference, but no institution works in a vacuum. NU is a highly visible investment by the people of Kazakhstan in their future. To succeed, NU must not only meet President Nazarbayev's vision for the university, "to create graduates prepared to the highest international standards to contribute to research, education, and the national economy;" it must also prove in other ways that the trust and investment the Kazakhstan people are making in NU are justified. Research output, its quantity, its quality, its impact will be a critical part of that proof. Continued sustained support by future generations of Kazakhstan leaders will hinge upon such proof. NU must demonstrate that it can hold its own among the world's best and brightest.

Kazakhstan is committed to becoming a leader in research and education in the Central Asian region and beyond. To achieve this goal, Astana must become a hub of knowledge and innovation. With a vibrant teaching and research culture, Astana will attract the best researchers and faculty, building networks with leading research organizations and institutes and becoming an active member of the international academic and research community.

Shigeo Katsu, Rector/President,
Nazarbayev University
April, 2013

Strategic Agenda

Vision

To give Kazakhstan and the world the scientists, academics, managers and entrepreneurs they need to prosper and develop

Mission

To be a model for higher education reform and modern research in Kazakhstan and to contribute to the establishment of Astana as an international innovation and knowledge hub

Goals

Goal I: Educational reform leadership

To ensure that the lessons of NU's experience are transferred and understood by other universities, schools and research centers.

Goal II: Academic Excellence

To achieve NU's mission by developing and maintaining academic excellence.

Goal III: Research Excellence

To develop a program of world-class research by partnering with the world's best researchers and research institutions

Goal IV: Creating a Model For Healthcare Services

To establish a healthcare system that will provide a model for healthcare services throughout Kazakhstan

Goal V: Innovation and Translating Research into Production

To become Kazakhstan's main driver of innovation, leading the way for Astana to become a regional hub of innovation.

I. Introduction

Great teaching and research universities around the world vary considerably in structure, size and academic focus but most share certain fundamentals. Among these are their commitment to academic and research excellence, to providing leadership in areas and sectors in which they have special expertise, and in promoting discovery and innovation. Many also find themselves at the center of efforts to develop new companies that will take turn university-generated ideas and knowledge into products and services that enhance and enrich people's lives. Nazarbayev University will achieve its vision and mission only if it finds success in all these areas.

The strategy set out here should be seen as the first installment of an ongoing and evolutionary process. It is a joint effort by the administration, faculty and researchers at NU. As NU develops, and as we learn from our successes and mistakes, this strategy will undoubtedly change. Regular reviews of the strategy are planned to ensure that it remains true to its mission, and that effective instruments are being employed to achieve that mission.

II. Education reform leadership

Since its inception, NU has been seen as part of a larger education reform agenda, a reform effort that covers the entire range of Kazakhstan's education and training institutions. At each level of the country's education system reforms are being tested and instituted through a series of lead institutions. For higher education, NU is the laboratory that will give the government input into the reform of existing universities and into future efforts to create new institutions of higher learning.

This role puts a special obligation and burden on NU. As the university establishes itself as a high-quality teaching and research institution, it must ensure that the lessons gained from NU's development are available to, and influence the development of, Kazakhstan's higher education system.

Even in these early days lessons from NU's development are emerging that will change the way other Kazakhstan universities operate. NU will make its dissemination role a priority institutional task. In particular, it will participate in learning workshops and task forces organized by the Ministry of Education and Science, host annual conferences such as the Eurasian Higher Education Leaders' Forum, and collaborate with Nazarbayev Intellectual Schools (NIS) in modernizing secondary school education.

NU's development model

Developing teaching and research universities that are competitive internationally is a daunting undertaking. To meet this challenge, Nazarbayev University established partnerships with leading universities and research centers around the world. These partners are helping NU understand the critical elements of a world-class education and research institution. One of the first messages NU's partners

delivered was the need to reform the legal environment under which NU would operate.

Legal framework

Early in Nazarbayev University's development it was determined that if NU is to compete internationally it must operate under a legal and governance structure consistent with the best such structures around the world. On January 19, 2011 President Nazarbayev signed a new law "On the Status of "Nazarbayev University", "Nazarbayev Intellectual Schools" (NIS), and "Nazarbayev Fund." This law created a legal environment appropriate for a modern university.

The Law establishes a new form of university governance. The Supreme Board of Trustees, chaired by President Nazarbayev, oversees Nazarbayev University as well as the Nazarbayev Intellectual Schools and the Nazarbayev Fund, approves long-term strategies and members of Boards of Trustees, and decides on organization of the University, NIS and the Fund. The University's Board of Trustees sets policy for the university, approves its budget and all senior university appointments. To ensure appropriate balance and oversight, the Boards of Trustees of the University, the Schools and the Fund will include scientists, leading academics, and representatives of society as well as government officials. This new legal framework, especially the principles of institutional autonomy and academic freedom and the management system imbedded in the new law, will serve as a model for other Kazakhstan universities.

Partnership model

NU's partners have included Cambridge University, Carnegie Mellon University, Colorado School of Mines, Duke University, National University of Singapore, University College London, the University of Pennsylvania, the University of Pittsburgh and the University of Wisconsin-Madison; its research partners include Lawrence Berkeley National Labs, Argonne National Labs, the University of Pittsburgh, Duke Medicine, the National Cancer Institute of Japan, and others. NU's partners are helping to create an institution that meets the highest global standards for university education and research and is at the same time uniquely Kazakhstani. In its relationships with partners, NU is firmly in the lead.

Learning from others

There are many challenges to creating a teaching and research institution from the ground up, but there are also advantages. NU can learn from the mistakes other universities have made and have to live with. NU's partners advised early of the need to avoid the silos and program isolation that plague many established universities. Meeting the challenges of the 21st century will require multi-disciplinary approaches to problem solving and innovation. Especially in the advanced degree programs, NU will emphasize a cross-disciplinary approach to science and research to give students and faculty a competitive edge in meeting these challenges. NU will encourage maximum interaction with other academic and research institutions and promote an open and outward looking atmosphere.

Culture and values

Diversity is an essential base for the development and sustenance of a great university. Diversity and tolerance will be a part of the university's culture,

integrated into every aspect of education, research and community. One of NU's guiding principles is equal access to education regardless of race, religion, gender, physical capacity or socioeconomic status. Nazarbayev University is a merit-based institution open to all talented and bright students, faculty and researchers.

Integrity is a core value at NU in all dimensions of teaching, research, administration, and student life. Observance by students, teachers, and researchers of high ethical principles and professionalism in their duties is a fundamental requirement. Only by creating its own culture will NU be seen as a uniquely Kazakhstani institution that has reached the highest levels of international teaching and research. NU will create tomorrow's leaders by giving its students not only high levels of technical and problem solving capacities, but instilling in them a commitment to country, to community, to tolerance and understanding.

Governance

At the core of all great universities is their governance structure – the rules, regulations, processes and procedures that create the environment in which the university operates. Nazarbayev University's governance structure is built on a set of principles (Box 1) that will guide the university's development.

To ensure adherence to these principles, NU has set up a collegiate governance structure beginning with the University Management, Academic and Research Councils. In addition some specific committees are being set up, and faculty has organized Faculty Senate. NU's Schools have their own governance structures with a School Committee, a Curriculum Committee and, when required, a Disciplinary Committee.

Box 1: Core governance principles

Autonomy and Accountability: Independence and collegiality in management and decision making based on democratic principles and accountability of each individual involved

Academic freedom: Guarantee of academic freedom of teachers and researchers within their research, educational, and clinical activities

Transparency and Openness: Ensuring full transparency of and public accessibility to all aspects of university operations

Funding

A university's sustainability, independence and integrity will depend on its ability to develop independent and predictable sources of funding. At this stage of its development NU is supported mainly through the government budget. Gradually, the university will reduce this dependency by attracting other sources of financial support, including contributions to the university's endowment, the Nazarbayev Fund, international and local research grants, and tuition fees.

Established in late 2009 on the initiative of President Nazarbayev, the Nazarbayev Fund is the first endowment fund in Kazakhstan. The Fund's activities are based on the principles of autonomy, self-government, collective decision-making, social responsibility and transparency. The mission of the Fund is to support the formation and running of NU and the Nazarbayev Intellectual Schools by providing a stable and long-term source of financing. Focus areas of the Fund will be research programs, scholarships, grants, and other authorized goals. The Fund will be

managed under the best international standards by qualified international investment advisors and managers.

III. Academic excellence

Academic excellence is the cornerstone of any great university. To achieve academic excellence, a university must have programs of recognized high quality across a broad spectrum of undergraduate disciplines as well as graduate and professional education. It must also ensure that its students have appropriate support and activities outside of the classroom, and that its faculty are well chosen, and encouraged and constantly supported in their efforts to stay at the top of their fields.

To achieve internationally recognized academic excellence, NU, working with world-class partners, is building strong undergraduate and graduate programs in engineering, science, technology, humanities and social sciences, as well as international quality professional programs in graduate business, public policy, education and medicine (Box 2).

Undergraduate programs

NU's goal is to rank among Eurasia's top universities. While NU will emphasize engineering, science and technology, in line with Kazakhstan's development needs, to achieve its mission, it must also provide a solid liberal arts education to all graduates. In addition, NU is a quite different model of higher education from the one Kazakhstan's young people are accustomed to. A telling indicator is the low students/faculty ratio which reflects a small class/seminar-based approach. To smooth the transition from today's secondary schools to NU's system, entering undergraduate cohort have been going through a one-year program to improve academic English and critical thinking, and sharpen subject area skills in NU's Center for Preparatory Studies.

In the fall of 2011, NU achieved a major milestone by opening three undergraduate schools to receive the first cohort of CPS graduates. The Schools (Engineering, Humanities and Social Sciences and Science and Technology) will build NU's teaching and research programs and by 2014 offer a full complement of graduate degrees that will support NU's faculty development efforts.

School of Engineering

The School of Engineering is to become the leading center of excellence in Kazakhstan and the wider Central Asian and Eurasian region in advanced education, professional formation and research in engineering. Its program of education and research will enable students to compete globally and to contribute to the economic and social development of Kazakhstan. The School's focus is on achieving the highest international standards and local relevance in education, science and technology.

The School of Engineering's teaching and research programs are being developed in partnership with University College London, one of the world's leading universities. The School started offering degrees in chemical, mechanical, civil, and electronic and electrical engineering. These disciplines have been selected to produce graduates with the skills necessary to meet the needs of Kazakhstan and the Central Asia region in regard to sustainable development and economic progress, identified as priority themes in the "Kazakhstan 2030" and "Kazakhstan 2050" strategies.

Box 2: NU's accreditation process

Accreditation is an important signal of the quality of a university's academic and research program, its faculty, its graduating students. NU will seek accreditation at the university level from internationally recognized accreditation bodies as soon as circumstances permit. In the meantime schools, particularly the School of Engineering, are planning for individual program accreditation at an earlier date.

School of Humanities and Social Sciences

The School of Humanities and Social Sciences is dedicated to training leaders in all aspects of society by providing a well-rounded education in the social sciences, humanities and sciences. It is being developed in partnership with the University of Wisconsin-Madison. The School initially provides degrees in Political Science and International Relations, Economics, Anthropology, Sociology, History, World Languages and Literature.

The School of Humanities and Social Sciences will prepare NU students for intellectual challenges they will encounter throughout their lives and careers, regardless of choice of profession. In today's globalizing world, a liberal arts education is considered essential preparation for careers in business, government, education, the military, or any profession that requires critical thinking skills and the ability to problem solve. The School will also support NU's efforts to develop a Eurasia Regional Studies Institute to highlight Kazakhstan's and the region's unique history and cultures, among other regional interests.

School of Sciences and Technology

The School of Science and Technology, initially developed with the assistance of Carnegie Mellon University, is to become the leading center of science and technology education in Kazakhstan and the wider Central Asian and Eurasian region. The School will prepare students who will, literally, invent Kazakhstan's future by giving students a world-class education and so that they enter industry well-prepared and can engage in continuous lifelong learning. At this point degree programs include Chemistry, Biology, Physics, Robotics & Mechatronics, Mathematics, Computational Science, and Biomedical Sciences.

The School's programs of education and research will enable students to compete globally and to contribute to the highest internationally accepted standards in science and technology, and participate in the economic and social development of Kazakhstan.

Future directions

In addition to its three current schools, NU is pursuing several new initiatives to strengthen its ability to deliver on its mission and vision. Next on the list of undergraduate schools is a School of Mines and Geo-sciences complementary to the School of Engineering that will support Kazakhstan's efforts to develop a national workforce for the extractive industry sector. NU endeavors to internationalize its student body by, among other things, offering scholarships to selected international students and creating an attractive curriculum and student experience. An international student body will better prepare our students for the challenges that a globalized world will present them. NU is also ramping up the annual student intake in order to respond to the increased number of graduates from advanced high school programs such as the Nazarbayev Intellectual Schools.

Graduate Programs

Highly skilled engineers and scientists are essential to Kazakhstan's growth and development, but technical skills alone cannot create the future that Kazakhstan's citizens want and deserve. Ideas need to be turned into enterprises, entrepreneurs need to create the businesses that will employ Kazakhstan's workers, government needs to develop and implement the right economic and social policies to support development efforts. NU is contributing to these challenges by setting up four graduate professional schools in addition to graduate programs offered through the three original Schools that will target talented bachelors graduates, including those who studied abroad under the "Bolashak" program, top students from Kazakhstani universities, and our own graduates.

Graduate School of Business

Partnering with the Fuqua School of Business at Duke University, NU's Graduate School of Business launched in March 2013 has opened an executive MBA program modeled after Fuqua's highly rated EMBA and custom MBA programs. In time for the first NU baccalaureate graduates, the School will develop and offer a resident MBA program with specialties in areas critical to Kazakhstan's managerial and entrepreneurial needs. Corporate education is already under way with an emphasis on Entrepreneurship for SMEs, to be followed by programs for larger established businesses, including the energy sector.

Graduate School of Public Policy

NU's location in Astana, Kazakhstan's capital and administrative center creates a special obligation to prepare future public sector leaders and to improve the quality of current leadership. NU needs also to be a part of the policy dialogue that will shape the country's future. To achieve these goals, a Graduate School of Public Policy is being developed with the support of the Lee Kuan Yew School of Public Policy at the National University of Singapore. NU's Graduate School of Public Policy will begin operations with a first cohort of Masters in Public Policy students in the fall of 2013. Executive training for officials from the highest government levels has already begun.

Graduate School of Education

The School of Education, opened in 2012 will offer its first programs in Fall 2013. There will be two tracks, one emphasizing higher education led by the Graduate

School of Education, University of Pennsylvania, and another focused on secondary education led by the Faculty of Education, University of Cambridge. There will initially be two Master's degree courses with options for policy makers, those who plan to take leadership roles in the management of higher education and secondary education, the faculty of pedagogical institutes, and subject and curriculum experts in schools. A PhD program will follow suit.

School of Medicine

NU is in the process of transforming its National Medical Holding (NMH) to be part of an integrated academic healthcare system (IAHS). The IAHS will include the hospitals of the NMH, the Center for Life Sciences and the future School of Medicine. NU's IAHS will be to the health sector what NU Schools and GSE are to the education sector, bringing together instruction, training, research and clinical practice. Whereas NU's schools will lead education reform in Kazakhstan, NU's integrated academic healthcare system will lead health sector reform through innovation and experimentation.

NU's School of Medicine, due to open in 2015, will develop a unique model of medical education where the graduates will have the opportunity to build their careers as scholars in medical research, education, and patient care. In the 4-year graduate medical curriculum, the students will be introduced to clinical experiences from their first year. Most of the classes and clinical rounds will be organized at the hospitals of the National Medical Holding. The hospitals have embarked on an international certification program so that they can serve as modern teaching hospitals.

Faculty

Success of any university is driven by the quality of faculty. One of the greatest challenges for NU is to build a faculty body of the highest excellence. Global competition among universities for the best academics has never been so high and will be increasing in the coming decade. Building the heart of university – the faculty body - will be very challenging for NU as it builds its reputation. NU strives to promote the best hiring practices, to allow the international faculty to make the most of their talents and to assure appropriate rewards. NU is delivering on this commitment through a hiring process that is transparent, fair and thorough.

Students

Starting from the Foundation Program and at all levels, students are admitted to NU based solely on merit. Foundation students have to thereafter pass a set of rigorous examinations administered by one of NU's partners to be admitted. Once admitted, students will continue to be challenged to sustain academic excellence in order to progress/retain academic eligibility. This academic rigor is the foundation for student success as well as academic excellence.

Student life revolves around the students' needs, best interests, and aspirations. Student care begins with student recruitment and follows students up through graduation and beyond. Broadly speaking, an enriched student life encompasses student well-being and success, student engagement, and career services and entrepreneurship.

Student success

A great university should be more than a place where students become professionals. It must be a place where students become the well-rounded, thinking, active citizens and professionals who will form the intellectual elite of their generation. Success should not be limited to academics but rather should include the wider context of career, family, community, and citizenship.

At all great universities students receive a large part of their education outside of the classroom. Student life will therefore provide a varied set of opportunities for students to express and improve themselves outside the classroom. Student life is inseparable from the academic mission of the university and helps balance the educational experience and prepare students for their life after graduation. As NU matures, it will work hard to bring more students from other countries to the university to give Kazakhstani students a better understanding of the diversity of world cultures, and to give others from around the world a better understanding of Kazakhstan. Evolution of sciences and technology and the pace of events in today's world are so swift that much classroom teaching may become obsolete in a matter of years. Thus, a key capability NU students will develop is constant learning.

Graduates of our undergraduate schools will be encouraged to continue their studies at top international universities. Success of our students abroad will be critical in establishing NU's reputation as a truly global institution.

Student engagement

A system that seeks to empower rather than enforce, discuss rather than dictate, and collaborate rather than coerce will enhance the student experience. This experience will play an important role in teaching students to be active, upstanding citizens. To this end, the university will promote the development of an autonomous student government and a variety of student organizations. The faculty and staff of the university will be encouraged to engage with these student organizations to ensure that the Nazarbayev University experience is the very best that it can be. Students are also expected to engage with the community outside the university walls in a wide range of public service activities.

Career services and entrepreneurship

Students will have access to resources to explore opportunities and gain the appropriate additional skills and experience they need. The university has created a Student Career Development Center that gives students access to potential employers, provide career guidance, conduct workshops on job search skills, and help students analyze their skills and interests to match them to the needs of the marketplace.

Campus

Nazarbayev University's ability to achieve academic excellence will rest not only on its students, faculty and researchers but on its physical plant, its teaching facilities, library, labs, recreational facilities, dorms, and faculty housing as well. NU's Master Construction Plan will create a learning environment and research infrastructure that meet international standards.

Master Construction Plan

NU's design is guided by the proposals of its university and research partners. Construction is divided into 4 phases to meet the growing demands of NU's schools, library, labs and research centers. Phase I was completed in September 2010. The second phase, which will expand housing, student facilities, faculty housing, labs and professional schools, is slated for completion in December 2013. Phases III and IV will expand student and faculty housing and continue NU's investment in labs and teaching facilities to meet its growing student and faculty numbers and to lay the basis for an intellectual-innovation cluster.

Library

A modern, accessible, innovative library is fundamental to a university's quality and stature. The Nazarbayev University Library will provide highly qualified librarians and excellent collections to support the university vision and mission as it establishes itself as a leading Eurasian university. The library will continue to develop its collection of print and digital information resources. Development of digital resources will be an increasing emphasis, as will the integration of new technologies as they become available. The advanced e-resource collections and adoption of emerging technologies is making the NU library the leading library in Central Asia. The library will also serve as a training center for library professionals throughout Kazakhstan and Eurasia.

Instructional Technology

NU is committed to incorporating the latest instructional and informational technology in order to deliver a cutting-edge educational product. NU students are trained in accordance with the most current pedagogical methods and using the most advanced educational resources available at major international universities. Going forward, NU will continue to maintain and develop its technological infrastructure to ensure that its programs are competitive with those of top ranked international institutions.

IV. Research Excellence

A vibrant and high quality research program will be essential to NU's success. Research will be generated across the institution by a combination of faculty-driven and research center-driven programs and projects. As with all great teaching and research universities, NU faculty will be research-active, undertaking regular programs of research, will publish, and will help NU build links to the best researchers and research institutions in other parts of the world. Faculty are able to pursue research in ways best suited to their disciplines, supported by NU through internally funded research grants, help with applying for external grants, and the emerging architecture of a series of research centers dedicated to the interdisciplinary exploration of specific research priorities.

To achieve research excellence and to justify the investment Kazakhstan is making in it, NU needs two types of research successes: cutting edge research that demonstrates NU can compete at the highest international levels; and research that

is seen to be immediately useful to Kazakhstan and the world. NU's research funding and support mechanisms are designed to support both research types.

NU's research will, of course, respond to the country's key research priorities as established by the Supreme Science-Technical Commission under the Prime Minister of Kazakhstan. Faculty and researchers started to compete for research grants that support these priorities.

NU faculty members and researchers can also apply for grants from sources outside the University, including but not limited to grants provided by the Ministry of Education and Science of Kazakhstan. All external grants applications must be submitted on an institutional basis by NU. The NU Research Council assures the submission of all proposals for external funding to undergo international peer review to ensure quality of proposals and support NU's emerging research reputation. A US-based peer review agency conducts independent peer review of NU proposals.

NU will further perfect its research administration and research services provision through institutional and capacity development of the Central Research Office which serves as "one stop shop" for faculty and researchers of the University.

Nazarbayev University is proud to be committed to the ethical use of humans and animals in both basic and applied research. As such NU has created training, policies and guidelines pertaining to the oversight of research utilizing humans or animals that adhere to Kazakhstan law and internationally accepted standards.

Institutional framework

To deliver on the University's research agenda, NU needs a governance and administrative support structure that fosters world-class research and especially collaboration of NU researchers with the best international researchers and research institutions. NU's research management is guided by a set of Research Policies and Procedures approved by the Research Council. A key and continuing challenge is to ensure the full integration of NU's research centers and institutes with NU's teaching faculty, undergraduate and graduate schools. A fully integrated teaching and research university must have free and frequent movement of students, teaching faculty and researchers across institutional boundaries.

NU is also developing a supportive intellectual property rights framework to ensure that NU faculty and research staff is encouraged to take research and ideas to the marketplace. NU research will also benefit from government reforms of its research funding mechanisms. The introduction of a rigorous and independent peer review system for grant applications to the government and sharp increases in public research funds will provide important new opportunities for NU researchers and faculty.

Research in physical, biological and engineering sciences

Consistent with the President's vision that NU be a leader in science, technology and medical research, NU has already established two science research centers, the Center for Life Sciences and the Center for Energy Research. These centers have dedicated research staff but will also draw on NU faculty for expertise. Faculty research will also be supported by an Interdisciplinary Instrumentation Center. The Center of Energy Research has been renamed NU Research and Innovation System

(NURIS) as NU-wide research administrative parties have, for the time being, been entrusted to this unit.

Center for Energy Research

CER's mission is to develop and commercialize fundamental and applied energy and natural science and technology in the Republic of Kazakhstan in partnership with top world research centers and companies. CER will also strive to increase national scientific and engineering potential by creating an integrated model of education, science and industry as part of NU. The Center's goal is to be the leading multidisciplinary scientific research center in Central Asia. To achieve this end, CER plans to apply the US 'National Lab' model, through which the Government of Kazakhstan and national and international organizations will partner with CER to solve global scientific and industrial problems.

CER's current research priorities include Renewable Energy and Energy Efficiency; High-Energy Physics, Materials and Nano- Science; Energy Sector Modeling and Analysis; and Computer Science. Research programs in these areas have been initiated in cooperation with the Lawrence Berkeley National Laboratory and other prominent research institutions.

Center for Life Sciences

CLS's mission is to create new fundamental knowledge on the nature of the living organisms and to apply this knowledge to extend the lifespan and to reduce the burden of the diseases. Its goal is develop the scientific capacity and modern infrastructure needed to implement research projects which focus on biomedical research and innovation, as well as establishment of the foundation for biomedical industry in Kazakhstan. The results of this research will contribute to the transformation of clinical medicine into a system of science-based diagnosis and targeted prevention aimed at improving people's health, quality of life and lifespan.

CLS's priorities include areas such as translational medicine, scientific basis of healthy aging, global health, genomic and metagenomic research, personalized medicine, regenerative medicine and artificial organs, tissue bioengineering, cell therapy, and innovative cell technologies. Laboratories are being established in order to develop these research areas.

CLS has established joint research projects with leading international scientific and educational organizations in the U.S., Europe, Japan, China and Korea (University of Pittsburgh, Duke University, Columbia University, the U.S. National Institutes of Health, University of Brighton, University of Oxford, University College London , Medical University of Graz, Martin Luther University, National Cancer Center, University of Hiroshima, the Beijing Genomics Institute, Seoul National University, ILCHUN Genomics Institute) to implement the research objectives.

Research in social sciences and humanities

NU is also active in an increasing spectrum of social science research, ranging from scholarly basic research to applied policy research. Scholarly research in anthropology, economics, history, political science and sociology is being carried out by NU's School of Humanities and Social Sciences faculty. In addition NU will undertake a vigorous program of policy oriented research that will support Kazakhstan's development efforts.

To support and foster both types of research NU is creating a Social and Economic Research Institute (SERI) that will house specialized social science research centers. Two such centers are already active. The Center for Education Policy (CEP) is a direct outgrowth of Kazakhstan's push to transform its education system at all levels. The National Analytical Center (NAC) is a policy analysis group set up by the Prime Minister's Office that was transferred to NU in 2011. At least two additional centers will be launched in 2013-2014: a Eurasia Regional Studies Institute and a Center for Growth and Competitiveness.

Center for Educational Policy

The strategic directions of CEP are to create a model for the integration of the interests of education, science and industry; to create professional development and advanced training programs, providing new management skills for managers and teachers to make an enhanced contribution to education; and to organize communication with key stakeholders, including meetings and conferences with establishment of the Graduate School of Education. CEP is moving to become the research arm of the Graduate School of Education.

CEP has the lead role in disseminating the NU model to other universities in Kazakhstan and for training, and re-training, education professionals, to prepare new generations of leaders in education. As an example, since fall 2011 through CEP NU has started to offer a one year professional development program (PDP) in partnership initially with UCL to train some 100 secondary school teachers in modern pedagogical practices, curriculum development, and English language. Upon completion, the participants will be assigned to teach at the Nazarbayev Intellectual Schools. Another PDP (with Cambridge Assessment) trains some 50 secondary school teachers in critical thinking.

National Analytical Center

The Government of the Republic of Kazakhstan established the National Analytical Center as a think-tank for ministries and agencies providing high quality analytical support for policymakers. The NAC provides consulting and analytical services to the state and private sector through research projects in public management and economic issues.

Eurasia Regional Studies Institute

The goal of the Eurasian Regional Studies Institute is to establish NU as a center of excellence in Central Asian/Eurasian research that can draw on Kazakhstani and international experts to play a key role in enhancing the quality and international links of regional scholarship at NU, across Kazakhstan and internationally.

Center for Growth and Competitiveness

As set out in the strategies "Kazakhstan 2030" and "Kazakhstan 2050" the country has an ambitious growth and development vision designed to move it into the ranks of the world's upper income countries. NU will be an active participant in achieving this vision. To do this, NU is establishing a Center for Growth and Competitiveness with an initial focus on the development of research excellence in global value chain analysis.

The CGC, through its global value chain focus, will be an important instrument in creating an innovation hub in Astana. CGC staff will work closely with colleagues in other NU research centers and the Intellectual-Innovation Cluster to help turn research findings into commercially viable products.

Center for Life Sciences

CLS's mission is to create new fundamental knowledge on the nature of the living organisms and to apply this knowledge to extend the lifespan and to reduce the burden of the diseases. Its goal is develop the scientific capacity and modern infrastructure needed to implement research projects which focus on biomedical research and innovation, as well as establishment of the foundation for biomedical industry in Kazakhstan. The results of this research will contribute to the transformation of clinical medicine into a system of science-based diagnosis and targeted prevention aimed at improving people's health, quality of life and lifespan.

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V. Creating a Model For Healthcare Services

Building modern academic healthcare system

One of Nazarbayev University's strategic goals is to establish an integrated academic healthcare system comprising hospitals of the National Medical Holding (NMH), Center for Life Sciences (CLS) and the future School of Medicine. The ambition is to become a regional leader and flagship of the modernization of Kazakhstan's national health care system.

Creating a world-class medical center requires significant resources and time. Hospitals need to be integrated within a single system. Managing the system effectively will require an organization that avoids duplicating services and functions, merges financial flows and outsources effectively. To accomplish this, the consolidation of a modular infrastructure, and administrative and support services based on a new corporate information system, will be phased in. A universal logistics center is also planned. Unification of the organizational structure, business processes, and qualification requirements will enhance the quality of medical

services and improve economic efficiency, allowing branch organizations to focus on medical, scientific and educational activities.

There are five primary value propositions (Box 3) that form the foundation of integrated academic medical centers. These five value propositions are magnified by IAHS's potential to create capabilities that are both wide (i.e. horizontally integrated) and deep (i.e. vertically integrated).

Box 3: Value propositions driving integrated academic health centers

- Create breakthroughs in clinical diagnosis and treatment by uniting the roles of researcher and clinician and blending scientific expertise across disciplines.
- Improve quality of care and propel advances in cost-effective care with a multifaceted mission built on care delivery, teaching, and research, and applying advanced informatics.
- Draw on and analyze clinical information to improve care and thereby maximize the health of the community and general population.
- Educate and build workforce capacity, the next generation of clinicians, as well as translational and clinical physician-scientists.
- Attract premier research and clinical talent, resulting in a strong brand that differentiates IAHS from other medical centers.

It will achieve competitiveness for its medical services in the global market by connecting with the global scientific and clinical community, and integrating clinical, research, and educational activities within the academic health system of Nazarbayev University.

It will work with other parts of Kazakhstan's health provision system to transfer knowledge and improve services.

National Medical Holding

NMH was established to support President Nazarbayev's vision of creating world-class medical organizations that would provide high quality healthcare to the citizens of Kazakhstan and the region, and through this bring about greater socio-economic development for the country. There are six hospitals under NMH, the Republican Research Center for Neurosurgery, the Republican Center for Child Rehabilitation, the Republican Diagnostic Center, the National Research Center of Mother and Child Health, the Republican Research Center for Emergency Care, and the National Research Center for Cardiosurgery. They have embarked on an advanced international accreditation program as a prerequisite to serve as modern teaching hospitals. A seventh center, the National Oncology Center, will be added in 2014-2015.

In order to implement best international practice in hospital management, NMH will work closely with the University of Pittsburgh Medical Center. This partnership will cover a wide range of advisory, clinical and educational activities, including the establishment of uniform standards for the provision of services. Modern hospital management techniques for improving capacity utilization of clinics and hospitals and bringing the production performance of the clinics to world standards will be introduced.

Considerable attention will be paid to increasing transparency through the development of a new corporate culture and mentality.

Box 4: National Medical Holding Certification program

Certification by a recognized independent body is a concrete demonstration of improved quality of care provided by a health care organization. The U.S.-based Joint Commission for International accreditation is recognized as the gold-standard in hospital certification worldwide. NMH's National Research Center for Maternal and Child Health received its JCI certification in February 2012, the first multi-specialty, large (500-bed) tertiary care facility to do so among CIS region. All other NMH hospitals are preparing for JCI accreditation in 2014-2015, to ensure that NMH implements the best international practice in its healthcare facilities.

NMH has adopted an 8 point development strategy based on patient dignity; social responsibility; achieving international quality standards; incorporating new technologies; achieving efficient, best value, rapid throughput; continuing education; global integration; convenient and comfortable delivery. Its aims are

i) to provide internationally accredited medical care (Box 4) of the highest quality while anchoring a medical school that will produce Kazakhstan's future medical leadership;

ii) to become acknowledged regionally and globally as part of the integrated academic health system of Nazarbayev University, by positioning itself as a cutting-edge, patient-oriented system providing high-quality, effective, and safe medical care on the basis of translation of innovative technologies and research achievements into clinical practice.

VI. Innovation and Translating Research into Production

In January 2012 President Nazarbayev articulated an initial concept for the Intellectual Innovative Cluster (IIC) to be developed around Nazarbayev University. IIC will serve as an important element of the innovative development of Kazakhstan, and is to become a key system for commercialization of innovative research outcomes of the NU research.

Ultimately, the goal of the IIC to function as a vibrant eco-system for the creation, sharing and commercialization of knowledge. The following activities will be instrumental in order to achieve this goal:

- development of links between science and business;
- creating favourable conditions for education, recruitment and growth of new high-tech projects and businesses;
- generation of knowledge and new technologies demanded by the real sector;

- development of engineering capacity in the country;
- transfer and commercialization of new technologies;
- development of the “belt” of high-tech companies around Nazarbayev University;
- creation of new jobs for the graduates of Nazarbayev University.

The main elements of the IIC include a Commercialization Office, a Business Incubator, an Engineering Center, a Technopark, a Science Park, and Venture Funds.

VII. Nazarbayev University in 2020

By 2020 Nazarbayev University will have graduated 6 cohorts or some 3,000 plus students with an undergraduate degree. Around 2000 students will have graduated with a Master’s degree, and 300 will have obtained PhDs at NU. In terms of enrolment, by 2020 the student body will be constituted of 4,000 undergraduate students and more than 2,000 graduate students, with about 15 percent of them pursuing a doctoral degree. One fifth of the student body will likely be international. Two thirds of the graduated cohorts (undergraduates) will have moved on to study at top level international graduate programs within three years of graduation. As to the graduates who prefer to enter the job market, NU will have set up a placement tracking system that will track careers in categories such as international corporations, Kazakhstani firms, government agencies, teaching, research, own business or partnerships, not-for-profit organizations, media and politics.

Faculty recruitment, development, and retention will have stabilized on the basis of NU being internationally recognized as a serious research university. As an, admittedly incomplete, measure of faculty quality, an indicative goal would be to aim at three quarters of them qualifying in principle for tenure at NU’s partner universities.

All programs offered at NU Schools will have been accredited by their respective “international gold standard” accrediting authorities, or otherwise been recognized as exhibiting highest standards of academic excellence. NU will have evolved into becoming an active participant in the Bologna Process, including appropriate certification(s) from an external Quality Assurance agency, and will draw maximum benefits from international funding opportunities for its endeavors. NU as a whole will also have been, or will be in the final stages of institutional accreditation.

In terms of research, the integration of NU’s schools and dedicated research centers will have been completed. NU research centers will have established themselves as centers of excellence beyond Kazakhstan’s borders. At any time there will be close to 1,000 researchers affiliated with NU. NU’s research, while reflecting the diversity of faculty interest, will also have made an impact on key strategic priorities of Kazakhstan, e.g. in energy, in particular renewable and alternative energy sources, bio-medical research and technologies, computational sciences and robotics, and communication technologies. The 2017 EXPO will not only have given energy-related research and concepts a boost throughout Kazakhstan, but will also have provided NU with a platform to showcase early results of translational/applied research into innovative energy technologies and solutions. The technology and science parks surrounding NU will have created a full eco-system to support researchers from research and proto-typing facilities, to access to finance, and with entrepreneurial advice. Climate change and sustainable development/green economy will take center stage as meta-themes for NU’s research community, pushing Astana’s emergence as the preeminent research and development center in Eurasia.

NU Medicine, NU's integrated academic health care system will have established itself as a national brand, developing a new generation of physicians, nurses, researchers and hospital managers. High quality health care services and research will attract medical tourists from Eurasia to Astana.

Through the sharing of NU's experience, about one third of universities in Kazakhstan will have embarked on institutional and quality reforms patterned after NU, anchored in academic freedom, institutional autonomy with clearly articulated accountabilities. The educational and research eco-system that NU will have built-up will have made a profound difference to Kazakhstan's education and research system as a whole, thus documenting the validity of the original concept launched a decade earlier.

In sum, while NU's growth and development will have just started to hit its stride, by 2020 NU will appear in the upper third of various international university ranking league tables.

This is what NU strives for.

VIII. Summing up

NU is a new development/business model unique in the world that has been carefully thought out and is being put into practice. At its core is a modern governance framework anchored in an enabling law that provides for academic freedom and institutional autonomy, the cornerstones for a modern and competitive academic research institution.

Nazarbayev University and its Intellectual-Innovative Cluster is an ambitious, one might even say, audacious, national project that is the cornerstone of Kazakhstan's efforts to modernize and diversify. NU and the IIC will themselves be catalysts for change and innovation throughout the economy and the driving force in making Kazakhstan Eurasia's research and education hub.

Nazarbayev University has made huge strides thus far, anchored by a talented, professional, committed, and dedicated group of colleagues but the journey to making NU into a world-class academic institution will be long and arduous. Four challenges loom large for our fledgling university: (i) proving to the Kazakhstani public that the enormous investments in this university will indeed contribute to Kazakhstan's development; (ii) having future generations of Kazakhstani leaders sustain the commitment to NU; (iii) transforming NU into an autonomous academic institution not only in name, but in fact; and (iv) prevailing in a very competitive international context.

Annex: Nazarbayev University Milestones

Milestones Achieved in 2010-2012

- April 23-24, 2009
- The seminar devoted to the presentation of a new international university was held in Astana. Participants: Minister of Education and Science of Kazakhstan, Z. Tuimebayev, Deputy Vice-Chancellor of the University of Cambridge, A. Lonsdale, Secretary Board of Trustees of Stanford University, J. Uahtel, Vice Provost University College London, M. Worton, professors of other universities. At the seminar recommendations for the formation of trustees and advisory boards were developed, and also agreements on cooperation between universities were signed.
- October 17, 2009
- The first meeting of the Board of Directors of the "New University of Astana", chaired by the Prime Minister of the Republic of Kazakhstan K. Massimov was held. The University Development Strategy for 2010-2012 was approved.
- June 7, 2010
- The "New University of Astana", in accordance with the decision of the Government of Kazakhstan, changed its name to "Nazarbayev University" (NU)
- September, 2010
- NU accepted its first students at the Center for Preparatory Studies (CPS) on the "Foundation" programme
- October 5, 2010
- Center for Energy Research opened
- October 16, 2010
- Center for Educational Policy opened
- September 21, 2010
- Assignment of the National Medical Holding and its hospital system to NU as an important step in creation of integrated academic healthcare system, together with CLS and future School of Medicine
- December 6, 2010
- Appointment of the first Rector/President of the Nazarbayev University (Shigeo Katsu) by the President of the Republic of Kazakhstan

- December 7, 2010 - The first lecture of the President, N. Nazarbayev given to students of NU
- December 8, 2010 - Center for Life Sciences opened
- January 19, 2011 - The President signed the Law “On the status of Nazarbayev University, Nazarbayev Intellectual Schools and Nazarbayev Fund”
- March 3-4, 2011 - The symposium on clean technologies in collaboration with the International Energy Agency organized by Center of Energy Research
- March, 2011 - First Student Government formed
- June 15, 2011 - The change of the legal status of the University to “Autonomous organization of education”
- June 16, 2011 - The first meetings of the Supreme Board of Trustees and the Board of Trustees took place. The Main Strategic Directions for 2012-2020 were endorsed.
- June, 2011 - Conclusion of the first year of the preparatory “Foundation” programme at CPS
- August 31, 2011 - Opening of 3 Undergraduate Schools populated by students who successfully obtained “Foundation” programme certificates
- September, 2011 - First research publication under the name of NU published in a peer reviewed journal
- November, 2011 - First International conference “Modern Trends in Education” organized by Center of Educational Policy
- November 11-12, 2011 - First International Conference “Regenerative medicine and high-quality longevity” organized by Center of Life Sciences

- December 22, 2011 - Infrastructure Construction Master Plan – Second phase started
- December 28, 2011 - Launch of the Research Office
- February 27, 2012 - First seed grant awarded (by Research Office)
- March 2, 2012 - The National Research Center for Maternal and Child Health (one of the clinics of NMH) received Joint Commission International (JCI) accreditation, first among CIS countries
- March, 2012 - The Development Strategy of NMH for 2012-2020 was accepted
- March 29, 2012 - First government grant received (from Ministry of Education and Science)
- September 5, 2012 - Opening of School of Education. President Nazarbayev gave a mandate for NU to develop and implement the Intellectual- Innovative Cluster.